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ANALYSIS OF PACKAGE LABELS

BY  
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DEC 8 1925

INTRODUCTION

The object of this investigation was to ascertain what influence the label on a package has on a purchaser, and if possible to determine whether there is any logical relation between the quality of the contents and the wrapper. In an earlier experiment conducted by the writer, a group of subjects arranged according to choice twelve packages of brown laundry soap. They were permitted to use any basis of judgment they pleased, simply being informed that the price per cake was uniform. This arrangement was later compared with arrangements of the same soap in blank wrappers and later without any wrappers at all. The results showed that there is rather a high correlation between the various arrangements, and on analysis it was found that the two most important factors were: (1) *familiarity*, and (2) *size and shape*. The first of these was important in the case of three or four of the twelve brands, while the second determined the choice in all the other nine and to some extent with the three familiar brands. It was finally decided that if *size and shape* could be controlled and *familiarity* minimized, the results would show what influence was exerted by the labels. The endeavor to eliminate these factors led to the investigations herein reported.

The material consisted of twelve brands of canned "yellow cling" peaches put up in two and one-half pound tins (pls. 1-3).

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They were all the same size, all bore the name of the California Fruit Cannery Association, and different only in brand and make-up of label. Peach labels were selected on account of the great variety obtainable. The twelve selected brands were distributed among five qualities as follows:

Quality 1	Special Extra	1 brand
Quality 2	Extra	3 brands
Quality 3	Extra Standard	3 brands
Quality 4	Standard	3 brands
Quality 5	Seconds	2 brands
Total		12 brands

As there was only one brand obtainable of the first quality, there was no choice. In the case of qualities 2, 3, and 4 from which there was considerable selection, the choice was made by taking what appeared to be the best one, a medium one, and a poor one. From quality 5, one was chosen which seemed to be the best, and one other which seemed to be the worst.

The subjects for the experiment were shown the twelve cans, bearing their labels, and asked to make an arrangement according to preference. The cans were placed on a shelf a little above the level of the eye, in the endeavor to maintain store conditions. The same subjects were also to arrange the contents of the cans. For this purpose the peaches and juice were placed in saucers. There were twelve saucers, one for each brand. The subjects were to arrange these merely by appearance; they were not permitted to taste the contents.

## PART I

The persons selected for observers in this experiment were fifty men and fifty women, most of them untrained subjects, having no knowledge of the experiments other than what was conveyed in the written directions.

Sheets containing the following questions were handed to them for preliminary information:

1. What experience, if any, have you had in purchasing canned peaches?
2. Make a list below, of as many brands of canned peaches as possible.

The results showed that 34 per cent of the men and 28 per cent of the women had previous experience in purchasing canned peaches. Ninety per cent of the subjects mentioned one of our brands, Del Monte. Practically none mentioned any of the others.

On completion of the preliminary test, the subject was given the following set of directions:

The experiment in which you have been called to take part is on the psychology of the package, wrapper and container.

You will be shown twelve (12) brands of "Yellow Cling Peaches" under two conditions. In one condition the fruit in cans will be shown and in the other the fruit open. In both cases you are to arrange them from left to right, beginning with the first choice.

A memory test was made as soon as the arrangements were completed, the directions for which were as follows:

1. Write down the names of all the peaches you can remember of the series just shown you. Enter the item under one of the two heads, according to what you remember.

(a) Brand.

(b) Special feature (any feature of label you remember).

2. Which of these peaches shown, have you heard of before?
3. In the case of arranging the cans, what was the basis of your judgment?

Considering the fruit in the saucers, the arrangement according to position value\* is as follows:

	Men	Women	Men and women
Quality 1	3.26	2.60	2.93
Quality 2	5.86	5.37	5.61
Quality 3	5.77	5.91	5.84
Quality 4	6.26	7.04	6.65
Quality 5	10.54	10.23	10.39

The results show that there is a very marked difference in appearance between the various qualities, and that the observers,

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\* By position value is meant the average position given by the group of subjects. If the choice were arbitrary, each would have a value of six and one-half, but as there is of course a choice, the position held by any one label might range from one up to twelve. The average position of any label will be near one or near twelve only in case the subjects agree very closely with one another.

unfamiliar as they were with the material, could not be deceived, which as we shall later see, was not the case with the labels. The position values show that there is a greater difference between qualities 1 and 2 and between 4 and 5 than between qualities 2, 3 and 4. There are no noticeable sex differences.

The following table shows the arrangement of the cans when they were arranged according to their labels:

Quality	Name of brand	Men	Women	Men and Women	Memory Men and women
1	Griffon	5.90	6.52	6.21	26.5%
2	Del Monte	2.78	1.92	2.35	75.5%
2	Acme	6.00	5.42	5.71	47.2%
2	Oak	7.92	7.78	7.85	51.5%
3	Mission	4.10	4.48	4.29	62.5%
3	Gold Seal	4.88	4.56	4.72	31.2%
3	Sweet Brier	6.44	7.10	6.77	40.5%
4	Banquet	7.38	8.78	8.08	65.5%
4	Swallow	7.84	8.38	8.11	47.0%
4	Bouquet	8.32	8.58	8.45	33.0%
5	Ideal	6.06	3.88	4.97	42.0%
5	Creole	10.32	10.66	10.49	65.7%

The correlation of this arrangement (men and women combined), with the actual qualities is 0.48, showing that there is some relationship between the label and the contents; however, the subjects were far less correct in their judgment of the labels than in their judgment of the fruit itself. The analysis of this table shows that Del Monte comes first, probably because of its familiarity. The only important sex difference shows itself in the case of Ideal, which is ranked second by the women and sixth by the men. The range of position value of the women is a little greater than that of the men, showing that the former are more alike or positive in their selection. On the whole men and women correlate so highly that the figures can be combined without detriment to the final results.

The memory test was given to the observer after the completion of the arrangements just referred to. The subjects were asked to enter what they remembered under two headings: (A) Name of brand—being explicit information; (B) Special feature remembered—being general information. If under either head-

**GRIFFON BRAND** NET WEIGHT 1 LB. 14 OZ. California Fruit Canners Association




CALIFORNIA EXTRA DESSERT FRUITS




**GRIFFON BRAND**

**YELLOW CLING PEACHES** **YELLOW CLING PEACHES**

**CREOLE BRAND**



Choice California fruits



**CREOLE BRAND**

NET CONTENTS 1 LB.-12 OZ.

**YELLOW CLING PEACHES**

PACKED BY: California Fruit Canners Association  
GENERAL OFFICES: San Francisco, Cal.

**YELLOW CLING PEACHES**

*Bouquet Brand*




CALIFORNIA FRUIT CANNERS ASSOCIATION  
SAN FRANCISCO, CALIFORNIA.

*Bouquet Brand*



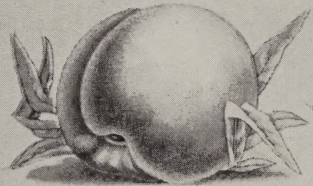
NET CONTENTS 1 POUND 13 OUNCES

**YELLOW CLING PEACHES** **YELLOW CLING PEACHES**

**SWEET BRIER BRAND**




California Fruit Canners Association.  
GENERAL OFFICES: SAN FRANCISCO, CALIFORNIA.



REGISTERED

**YELLOW CLING PEACHES** **YELLOW CLING PEACHES**

NET WEIGHT 1 LB. 14 OZ. NET WEIGHT 1 LB. 14 OZ.



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ing the information was partly correct, only half credit was given. The data have been combined into a single unit by taking the sum of the information, i.e.,  $A + B + \frac{A}{2} + \frac{B}{2}$ , and expressing it in per cent.

The results show that the observer well remembers his first choice and also clearly remembers the very bad labels at the end of the list.

In answer to the second question on the memory blank, "Which of these peaches shown have you heard of before?" Del Monte receives over 50 per cent more responses than all the others combined.

In reply to the third question, "In the case of arranging the cans, what was the basis of your judgment?" a great many factors or incentives are named, many of which are too complicated for analysis in such a study as this, but the following factors were frequently noted.

1. Familiarity
2. Color scheme
3. Simplicity
4. Richness
5. Appropriateness
6. Pleasingness.

It appeared that if these factors could be separately controlled, different arrangements might result.

## PART II

This part of the experiment deals with the arrangement of the labels used in Part I according to five explicit sets of directions, each one containing one of the incentives, with the exception of *familiarity*, referred to at the end of the last paragraph. Each set was arranged by thirty-seven women subjects, no one subject making more than one arrangement. Some of the subjects, however, had previously made the *uncontrolled* arrangement; these were warned that the directions differed from the first by calling for a definite arrangement.

The five sets of directions were as follows:

## 1

Arrange the twelve cans of peaches from left to right beginning with your first choice on the left according to *color scheme*.

Place the one with the most effective color scheme on the extreme left, then the next most effective, and so on down to the one with the least effective color scheme.

## 2

Arrange the twelve cans of peaches from left to right beginning with your first choice on the left according to the *simplicity* of the label.

Place the one with the most simple label on the extreme left, then the next most simple, and so on down to the least simple.

## 3

Arrange the twelve cans of peaches from left to right beginning with your first choice on the left according to the *richness* of the label.

Place the richest on the extreme left, then the next most rich, and so on down to the least rich.

## 4

Arrange the twelve cans of peaches from left to right beginning with your first choice on the left according to the *appropriateness* of the label.

Place the one with the most appropriate label on the extreme left, then the next most appropriate, and so on down to the least appropriate.

## 5

Arrange the twelve cans of peaches from left to right beginning with your first choice on the left according to the *pleasingness* of the label as a whole, including design or picture, typographical arrangement and balance.

Place the most pleasing one on the extreme left, then the next most pleasing, and so on down to the least pleasing.

The position value for the different arrangements under the various captions is as follows:

	1 Uncontrolled judgment	2 Color	3 Richness	4 Pleasing- ness	5 Simplicity	6 Appropri- ateness
Del Monte	2.35	3.32	3.51	3.67	3.27	4.51
Mission	4.29	5.43	4.54	3.81	6.00	5.40
Gold Seal	4.72	5.81	3.97	5.13	6.30	5.05
Ideal	4.97	5.45	5.72	4.86	1.48	5.32
Aeme	5.71	5.02	6.06	5.75	2.35	6.00
Griffon	6.21	7.70	4.87	6.64	6.37	6.86
Sweet Brier	6.77	5.75	6.93	6.08	7.10	6.27
Oak	7.65	6.94	7.09	5.43	6.37	7.10
Banquet	8.08	8.64	8.60	10.43	11.37	6.46
Swallow	8.11	6.81	8.18	6.21	10.27	7.67
Bouquet	8.45	8.02	8.21	8.62	9.30	7.73
Creole	10.49	9.02	10.30	11.32	7.72	9.60



**GOLD SEAL BRAND** EXTRA STANDARD QUALITY **GOLD SEAL BRAND**




NET WEIGHT 1 LB. 14 OZ.  
**YELLOW CLING PEACHES**

CALIFORNIA FRUIT CANNERS ASSOCIATION  
GENERAL OFFICES  
SAN FRANCISCO CALIFORNIA

REGISTERED

**YELLOW CLING PEACHES**

**MISSION BRAND**  
NET CONTENTS 1 POUND 14 OUNCES





**YELLOW CLING PEACHES**

REGISTERED U. S. PAT. OFFS.

TRADE MARK REGISTERED  
CALIFORNIA FRUIT CANNERS ASSOCIATION  
SAN FRANCISCO CALIFORNIA U.S.A.

ST. CAROL MISSION  
ERECTED 1771

**SWALLOW BRAND**



**YELLOW CLING PEACHES**

CALIFORNIA FRUIT CANNERS ASSOCIATION  
SAN FRANCISCO CALIF.  
SUCCESSORS TO  
A. J. TENNEY CANNING CO.  
FRESNO, CALIFORNIA.

**SWALLOW BRAND**



NET WEIGHT 1 LB. 13 OZ.

**YELLOW CLING PEACHES**

**OAK BRAND**



**YELLOW CLING PEACHES**  
NET CONTENTS 1 POUND 14 OUNCES

Extra Quality California Fruits

CALIFORNIA FRUIT CANNERS ASSOCIATION  
GENERAL OFFICES  
SAN FRANCISCO CALIF.

REGISTERED

**OAK Brand**



**YELLOW CLING PEACHES**  
NET CONTENTS 1 POUND 14 OUNCES



Column 1 is the *uncontrolled* arrangement. Comparing this with the *controlled* arrangements, the following differences in rank are noted (a plus (+) indicating an increase in rank, i.e., higher position value; minus (—) indicating a decrease in rank, i.e., a lower position value) :

	Color	Richness	Pleas- ingness	Simplicity	Appropri- ateness
Del Monte	0	0	0	—2	0
Mission	—1	—1	0	—2	—2
Gold Seal	—3	+1	—1	—2	+1
Ideal	0	—1	+1	+3	+1
Acme	+3	—1	—1	+3	0
Griffon	—3	+2	—4	—1	—2
Sweet Brier	+2	0	0	—1	+1
Oak	0	0	+3	+1	—1
Banquet	—2	—2	—2	—3	+2
Swallow	+3	+1	+2	—1	0
Bouquet	+1	+1	+2	+1	0
Creole	0	0	0	+3	0

The following table shows which set of directions brought out the clearest contrast between the labels :

	Highest average position given to any label	Lowest average position given to any label	Range
Uncontrolled	2.35	10.49	8.14
Color	3.32	9.02	5.70
Richness	3.51	10.30	6.79
Pleasuringness	3.67	11.32	7.66
Simplicity	1.48	11.37	9.89
Appropriateness	4.51	9.60	5.09

The position value for the cans arranged according to *simplicity* ranges from 1.48 to 11.37, showing how closely the subjects agree in their choice. This arrangement was more mechanical than the others. It was possible to eliminate the other factors and consider the single factor, which seemed to be impossible with the arrangements according to the other incentives. It is of interest to note in this arrangement that Ideal and Acme rise in rank, and Del Monte, which is first in all other arrangements, drops to third place, but still has a higher position than it holds in any of the other *controlled* arrangements. Creole at

ninth place holds a much lower position value than it holds in any of the other arrangements at twelfth place. This is the only arrangement in which Del Monte is not first and Creole is not last.

*Appropriateness* is the least mechanical as well as the least intelligible, in consequence of which the subjects were unable to agree and the range of position value is very small—from 4.51 for the best to 9.60 for the worst.

*Color scheme*, which the subjects considered to mean an arrangement on an aesthetic basis, has also a comparatively small range of position value, showing nothing more than an arrangement according to color harmony instead of according to strikingness as was expected.

It is of interest to note that Acme and Swallow in this arrangement rise in position value, while Griffon and Gold Seal fall, which is probably due to a sex difference and might not be the same were the arrangements made by a group of men.

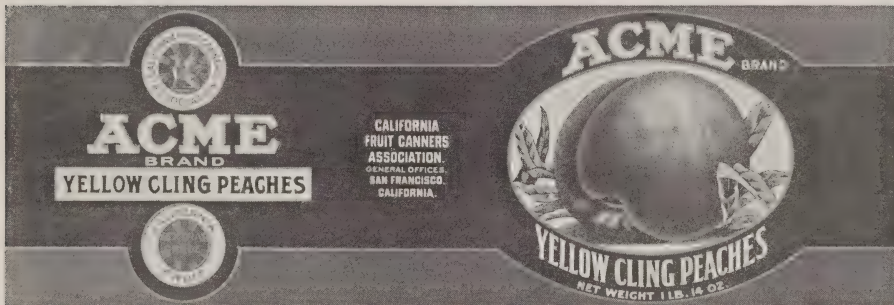
*Richness* caused the subjects a great deal of difficulty. It is ambiguous and could not be isolated from the other factors.

*Pleasingness* seems to have meant nothing more to the observers than a pleasing color combination and the arrangement is very similar to the one under color.

As the following table shows, there is a high correlation between the arrangements according to separate factors, and the *uncontrolled* judgment.

CORRELATIONS						
	Color	Richness	Pleasing- ness	Sim- plicity	Appropri- ateness	Uncon- trolled
Color	.....	0.75	0.86	0.79	0.77	0.82
Richness	0.75	.....	0.75	0.73	0.84	0.94
Pleasingness	0.86	0.75	.....	0.76	0.80	0.85
Simplicity	0.79	0.73	0.76	.....	0.73	0.80
Appropriateness	0.79	0.84	0.80	0.73	.....	0.94
Uncontrolled	0.83	0.95	0.85	0.80	0.94	.....

The correlations are all very high, especially between the various *controlled* arrangements and the *uncontrolled* arrangement; the two lowest correlations are between *simplicity* and





*richness*, and *simplicity* and *appropriateness*, in each case 0.73. The two highest correlations are between *uncontrolled* judgment and *richness*, and between *uncontrolled* judgment and *appropriateness*. In the former it is 0.95 and in the latter 0.94, both figures showing nearly perfect correlation. Probably the factor of previous familiarity is responsible for some part of this correlation.

These high correlations indicate that the *uncontrolled* judgments are not affected by one factor more than another, and that it is difficult to isolate any one factor with the possible exception of a purely mechanical element like *simplicity*.

The final arrangements would suggest that either these incentives are not wholly exhaustive of *uncontrolled* judgment or that perhaps *uncontrolled* judgment rests upon only a single incentive.

### PART III—DIVISION A

In this part of the problem, price was made the principal factor. The original retail prices for the various qualities were as follows:

Quality 1	25 cents per can
Quality 2	20 cents per can
Quality 3	15 cents per can
Quality 4	12½ cents per can
Quality 5	10 cents per can

In order to simplify the problem, only four brands were considered. Del Monte was eliminated on account of its familiarity; Mission was chosen as it came next to Del Monte; Acme and Ideal because they ranked about middle in the previous experiment; and Creole on account of its appearing always at the end of the list.

The observer was given to understand that he had an imaginary \$1.20 to spend in purchasing one of the four brands of canned peaches shown him. Each brand, in turn, was assigned a value of one of the four prices (30 cents, 20 cents, 15 cents or 10

cents) while the other three were given the other prices. The prices changed from brand to brand, so that all of the twenty-four possible combinations were presented to the subjects an equal number of times. No observer, however, had more than one arrangement.

The directions given to the subjects read as follows:

In this experiment please try to imagine yourself in the circumstances described below.

You have \$1.20 in your possession with which to purchase canned peaches to be served at your table to a group of friends for dessert.

Assume that all of this \$1.20 has to be spent in the purchase of one of the brands shown. Which would you choose?

The results for one hundred and forty-four cases, about equally divided between men and women, were as follows:

	30 cents	20 cents	15 cents	10 cents	Total
Ideal	21	20	6	1	48
Acme	21	17	7	3	48
Mission	14	17	4	....	35
Creole	4	8	1	....	13
	—	—	—	—	—
Total	60	62	18	4	144

It is of interest to note that Mission, which appeared in the former experiment to be a superior brand, comes after Ideal and Acme in this arrangement. Creole as in the other arrangements, is last. There appears to be more demand for this poor brand at thirty and twenty cents than at lower figures, showing that raising the price tends to increase the demand for a very poor brand as well as for other brands. From the above figures it would appear that twenty cents is the correct amount to charge college students, as more of them will buy at this figure than at any other. In monetary return, thirty cents seems to be preferable; there are not quite so many actual sales, but the total returns are greater, which is of course most important for the storekeeper.



## PART III—DIVISION B

Further consideration of the price factor suggested that price, popularity, and demand are intimately related.

The Del Monte brand was chosen for this part of the experiment because it was the most popular, and the Griffon because it was the most expensive.

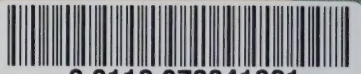
Four different prices were assigned alternately to Del Monte. It was first shown to thirty-six subjects from Division A, bearing the price of 20 cents, to the next thirty-six subjects marked at 30 cents, to the next group marked at 40 cents, and to the last group marked at 60 cents. In all cases it was shown along with Gold Seal and Bouquet, which were assigned prices of 10 cents and 15 cents, the prices being alternated on these two so that all possible combinations were obtained. Griffon was later shown under the same conditions as Del Monte, to the same groups of subjects.

The subjects were given the same set of written directions as for Division A.

The following table shows the distribution of choice:

			Gold Seal 15 cents	Gold Seal 10 cents	Bouquet 15 cents	Bouquet 10 cents
{ Del Monte	20 cents	31	2	....	3	....
{ Griffon	20 cents	25	5	....	6	....
{ Del Monte	30 cents	31	1	3	1	....
{ Griffon	30 cents	36	4	2	4	....
{ Del Monte	40 cents	25	5	1	5	....
{ Griffon	40 cents	21	5	5	5	....
{ Del Monte	60 cents	16	9	2	9	....
{ Griffon	60 cents	11	10	6	9	....

This table shows that Del Monte, which is really inferior to Griffon, is chosen at a higher price on account of familiarity. There appears to be an increase in demand for the less popular brands as their price is increased. This is illustrated by the fact that the demand for Griffon is increased nearly 50 per cent



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when sold at 30 cents instead of 20 cents. Bouquet does not create a single demand at 10 cents, but is just as popular, at 15 cents, as Gold Seal, although the latter has some demand at 10 cents.

#### SUMMARY

1. The best labels are actually used by the canners for superior qualities of goods, but there is no exact relation between the quality of the goods and the label.

2. All factors are so closely related that it is impossible to separate them. In making such an arrangement the exact wording of the directions is immaterial, since the arrangement under the directions intended to control the judgment is practically the same as the uncontrolled arrangement.

3. Other conditions being equal, more subjects, in 1916-1917, will pay 20 cents than 30 cents, 15 cents or 10 cents. All brands sell better at 20 cents or 30 cents than at 10 cents or 15 cents. Some brands have a larger sale at the higher prices than others; others can scarcely be disposed of at any price. The familiar brand has more sales at higher prices than an unknown brand that is in fact a superior quality. As price is increased until it becomes exorbitant, the number of sales does not decrease in proportion, so that returns to a dealer at higher prices are greater than at a moderate price.